

**SCHEMATIC DIAGRAMS**  
**FOR**  
**AVIONICS INTERMEDIATE COURSE**  
**CLASS C7**  
**C-100-2012**

**UNIT XII**  
**AIRBORNE RADAR SYSTEM TRAINING**  
**DEVICE 11D13**

**CNTT-M1620**  
**PREPARED BY**  
**NAVAL AIR TECHNICAL TRAINING CENTER**  
**NAVAL AIR STATION MEMPHIS**  
**MILLINGTON, TENNESSEE**

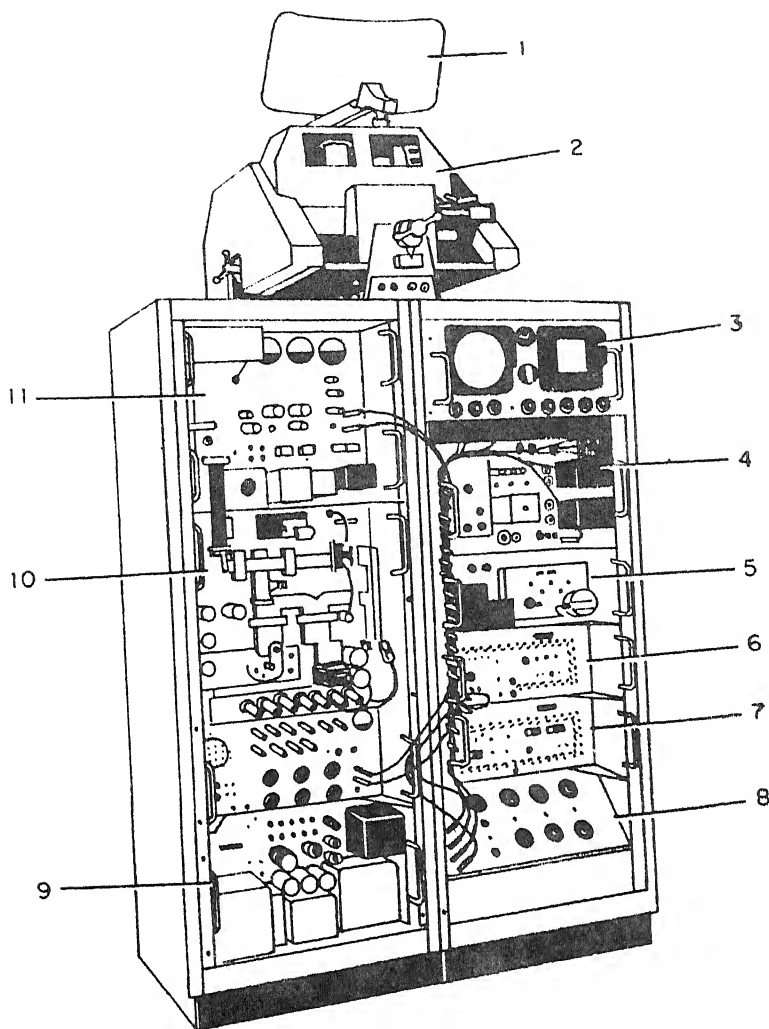
**PREPARED FOR**  
**CHIEF OF NAVAL TECHNICAL TRAINING**



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- |   |                                    |
|---|------------------------------------|
| 1. ANTENNA UNIT 850                         | 7. RANGE TRACKING UNIT 1900        |
| 2. ANTENNA STABILIZATION PLATFORM UNIT 1000 | 8. TARGET GENERATOR UNIT 2300      |
| 3. INDICATOR DISPLAY UNIT 1500              | 9. INDICATOR POWER SUPPLY UNIT 700 |
| 4. INDICATOR VIDEO UNIT 1400                | 10. RECEIVER/DUPLEXER UNITS        |
| 5. ANTENNA CONTROL GROUP UNIT 1800          | 200/300/900                        |
| 6. SYNCHRONIZER UNIT 600                    | 11. TRANSMITTER UNIT 100           |

**BASIC FIRE CONTROL RADAR MAINTENANCE TRAINING SET,  
DEVICE 11D13A**

Figure 1.

# TECHNICAL DATA

Power 8800 to 9600 megahertz  
on Freq. 1000 watts maximum  
1000 hertz  
1 microsecond

## DISPLAYS

### Search

Centered PPI  
Range Markers

### Fire Control

#### Search

10 db maximum  
30 megahertz  
4.0 megahertz

Centered PPI

B-Scope  
Artificial Horizon  
Acquisition Symbol

#### Track

B-Scope  
Artificial Horizon  
Range Gate Marker  
Range Circle  
Steering Dot  
Breakaway

#### Bomb Director

Offset PPI with Range,  
Azimuth Crosshairs  
Expanded display center  
about Range/Azimuth  
cursors

## RANGES

### Search

6,000 yards  
12,000 yards

### Fire Control/ Bomb Director

10,000 yards  
40,000 yards  
80,000 yards

## RANGE TRACKING

### Speed Range

2000 knots  
0 to 40,000 yards

## TARGET GENERATOR

### Range Bearing Elevation Range Rate Bearing Rate Elevation Rate

400 to 80,000 yards  
0 to 360°  
-45° to +45°  
0 to 2,000 knots  
0 to 10°/sec  
0 to 10°/sec

## ANTENNA OPERATION

### Azimuth

#### Search Radar

Automatic: 6 rpm clockwise  
Manual Slew: zero to 6  
rpm either direction  
Manual Position: 360°

#### Fire Control

Search: 60 degree sector,  
2-bar scan. Sector center  
adjustable, ±45 degrees.  
Antenna nod of 6 degrees.  
Searchlight: ±30 degrees  
Tracking: ±10 degrees/  
second minimum

#### Bomb Director

Automatic 60 degree  
centered sector scan

### Elevation

#### All Modes

#### Tracking

#### Stabilization

Manual tilt control ±45°  
±10 degrees/second, min.

Pitch: ±45 degrees  
Roll: ±15 degrees

## POWER

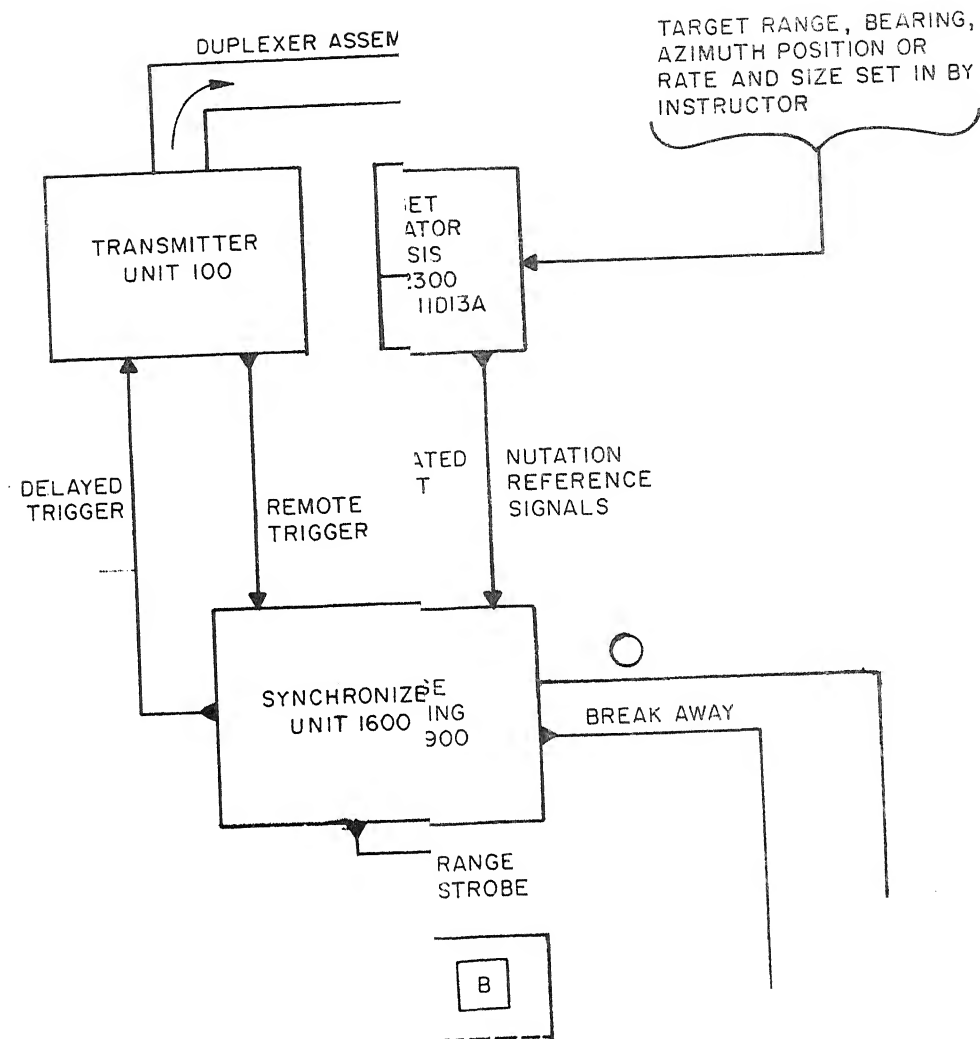
117-volt, 60-Hz single  
phase, AC

# NOTES

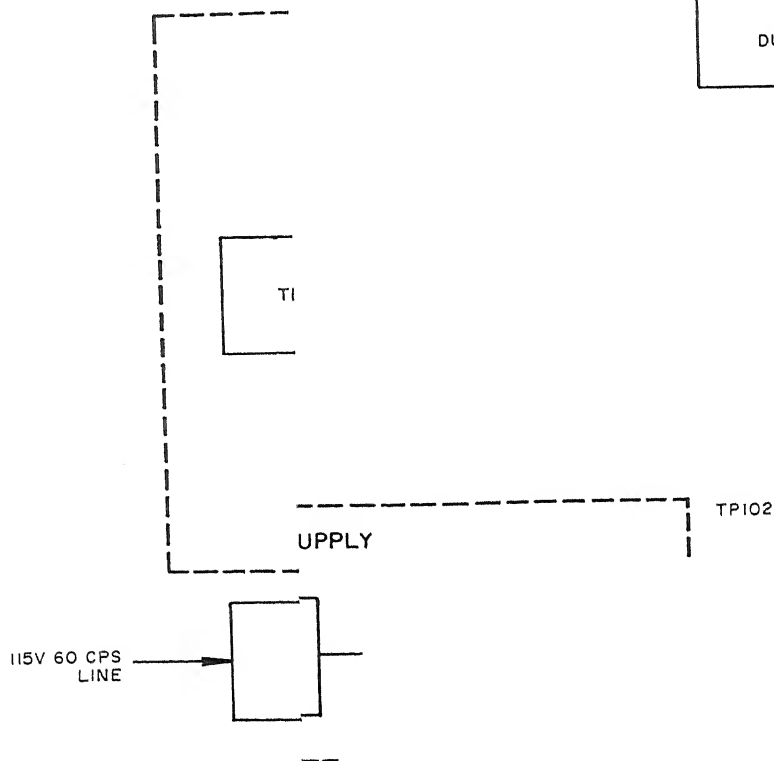
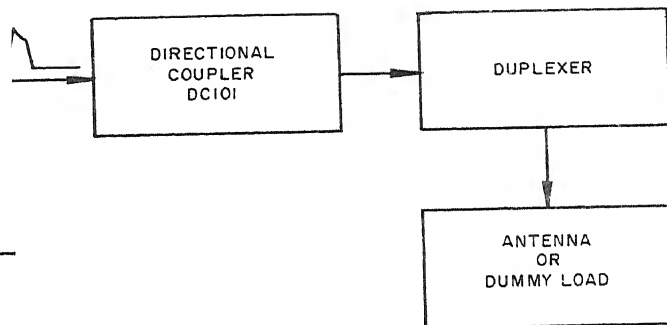
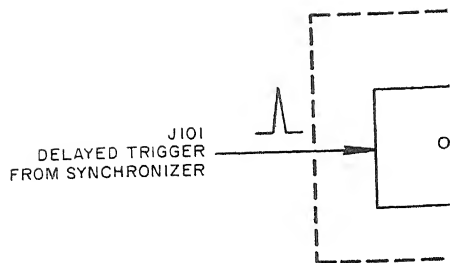
1. Unless otherwise noted, all cables are double-ended and are listed twice to facilitate location from either end.
2. Double asterisk(\*\*) indicates triple branch cable. Each branch is listed twice to facilitate location from any end.
3. Dagger (†) indicates roll-back cable which is part of harness of unit indicated. Roll-back cables are listed once under the cable grouping for the associated major unit.
4. Refer to Figure 4-3 for relative location and routing of cables. Solid line indicates cable path in front of consoles, dashed line indicates cable path behind consoles. J1 at bottom of main console is a feed-through connector. Roll-back cables A1301-P1 through A1320-P1 and A1501-P1 through A1520-P1 (not shown) connect from individual modules to adjacent unit receptacle as listed.
5. J104 is power test jack in direct coupler DC101.
6. Unit power line cord plug into rail assembly
7. Connects antenna horn.
8. Bonding strap, to transmit
9. High voltage rate from on indicator (CRT).
10. Receptables i utilize a t adapter to lel-connect tacle.
11. Roll-back cal dangling co



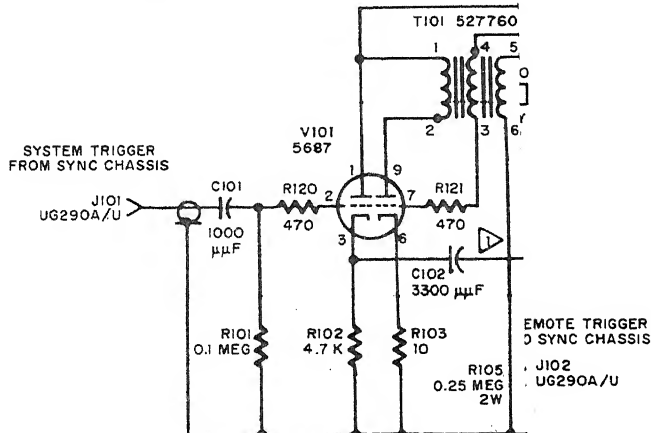




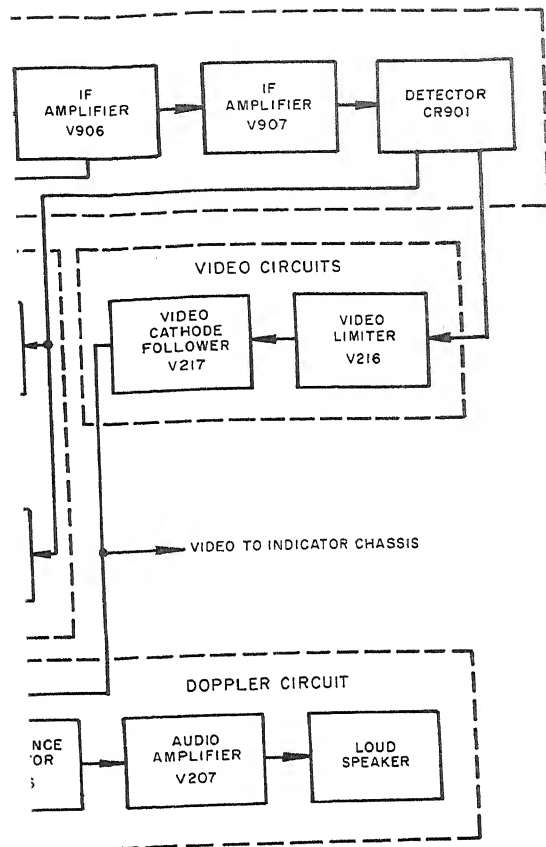
















UNLESS OTHERWISE SPECIFIED:

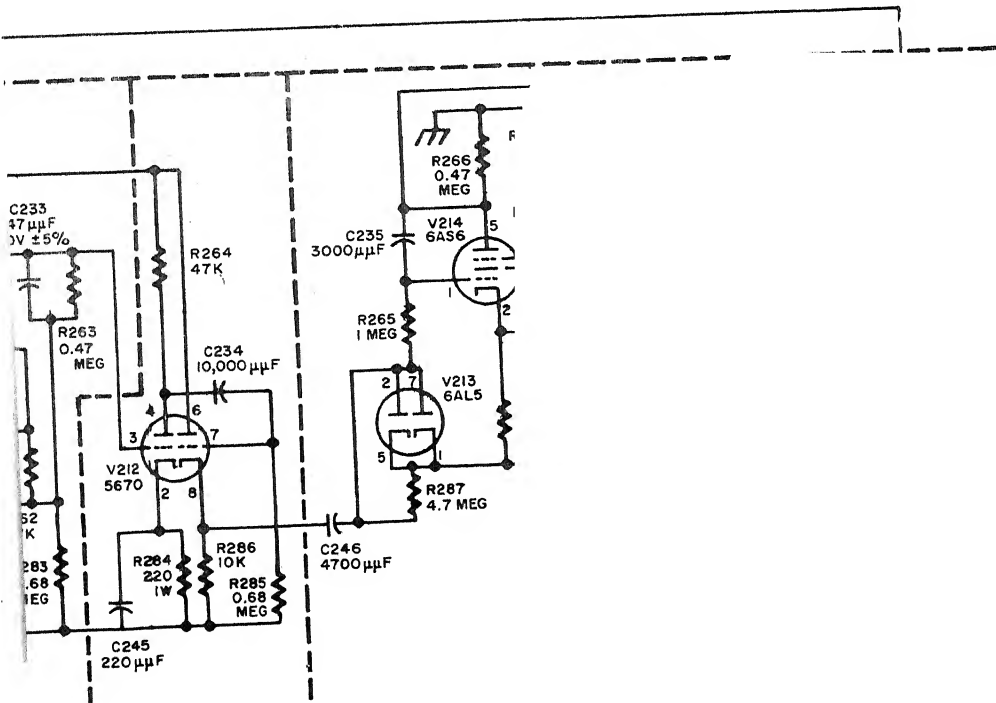
ALL RESISTORS ARE IN OHMS  $1/2W \pm 5\%$

ALL CAPACITORS ARE IN  $\mu F$   $400V \pm 10\%$

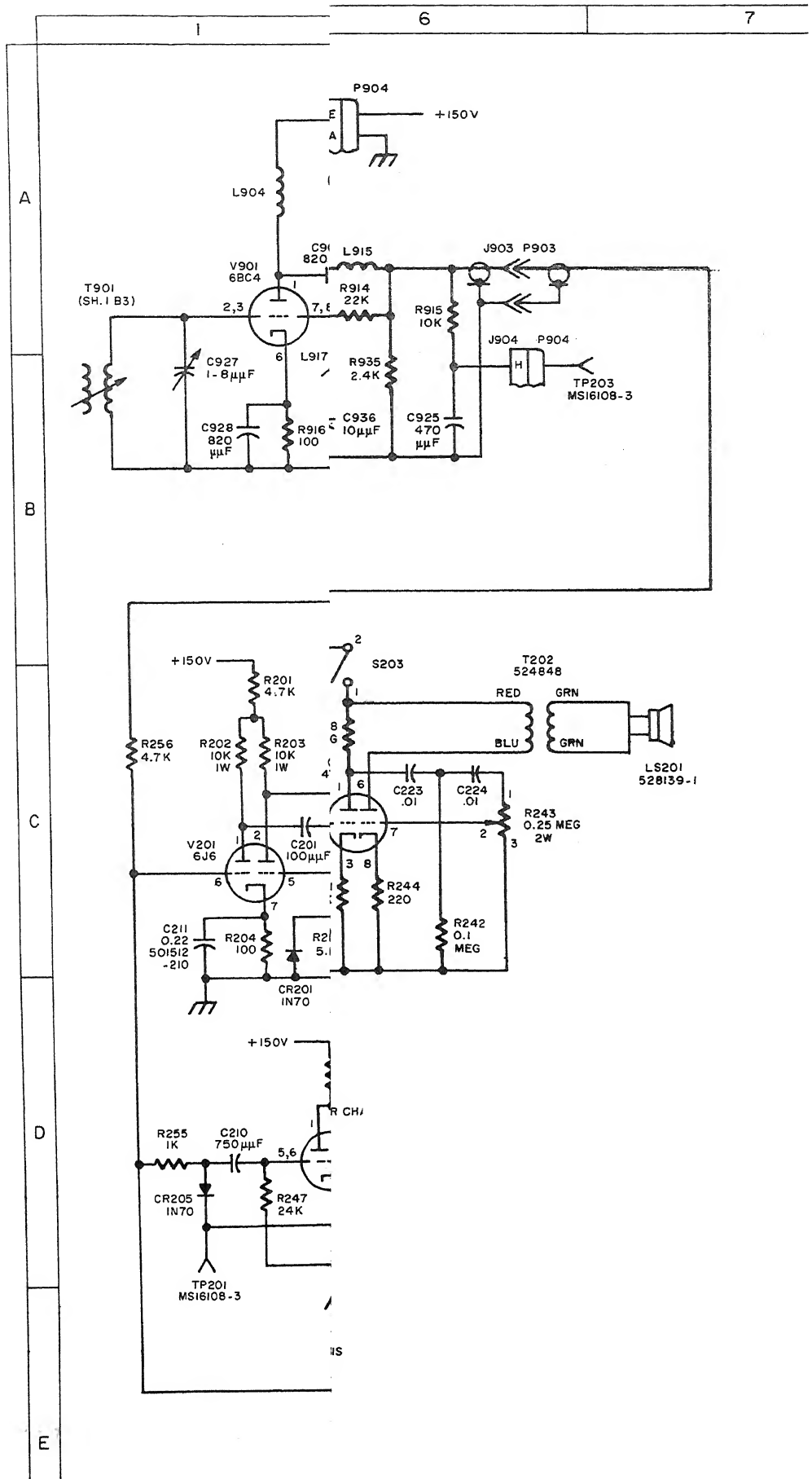
CAPACITORS IN  $\mu uF$  ARE  $500V \pm 5\%$

▷ THESE CAPACITORS ARE 600V (529746-1)

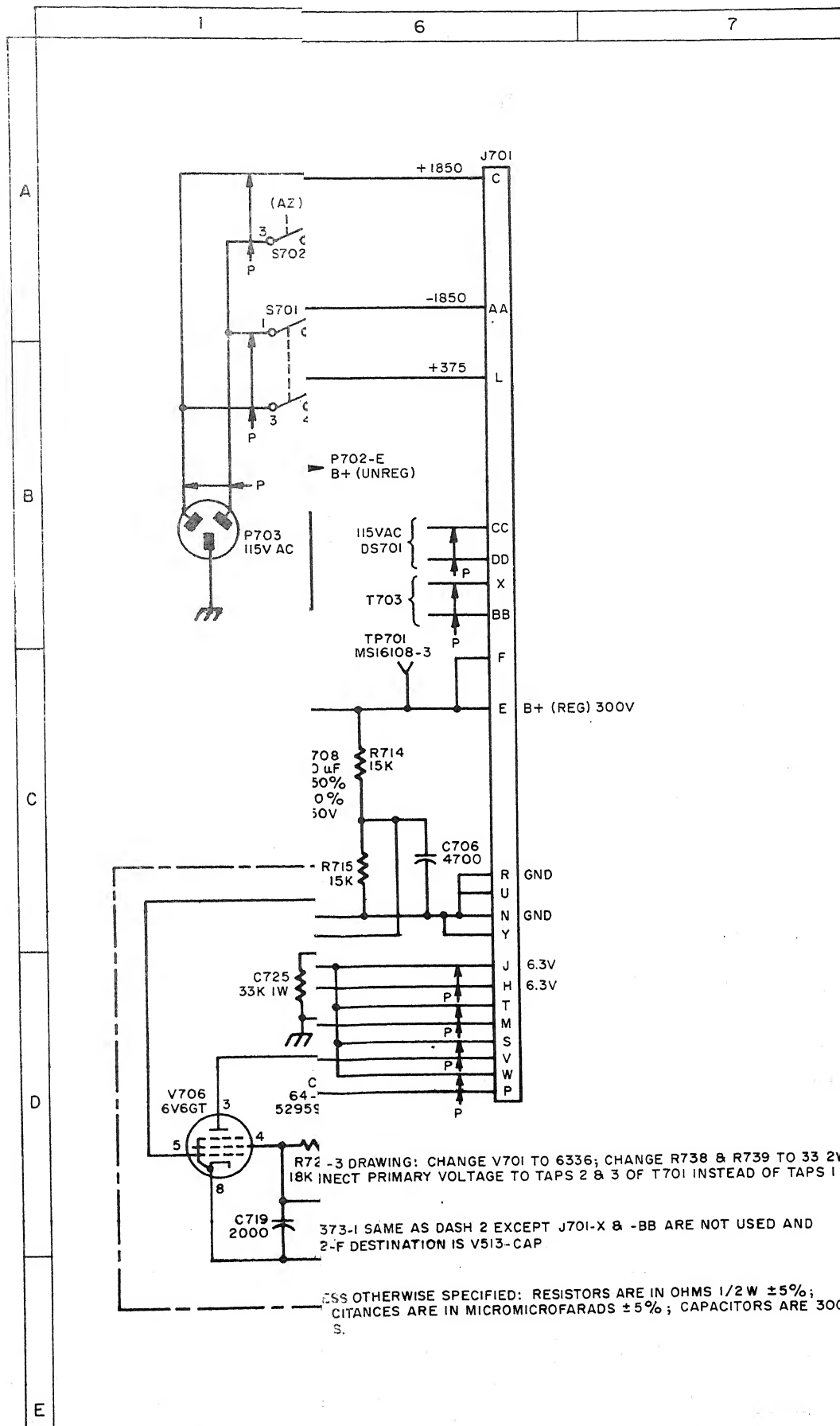
FOR ADDITIONAL WIRING NOTES SEE 60999



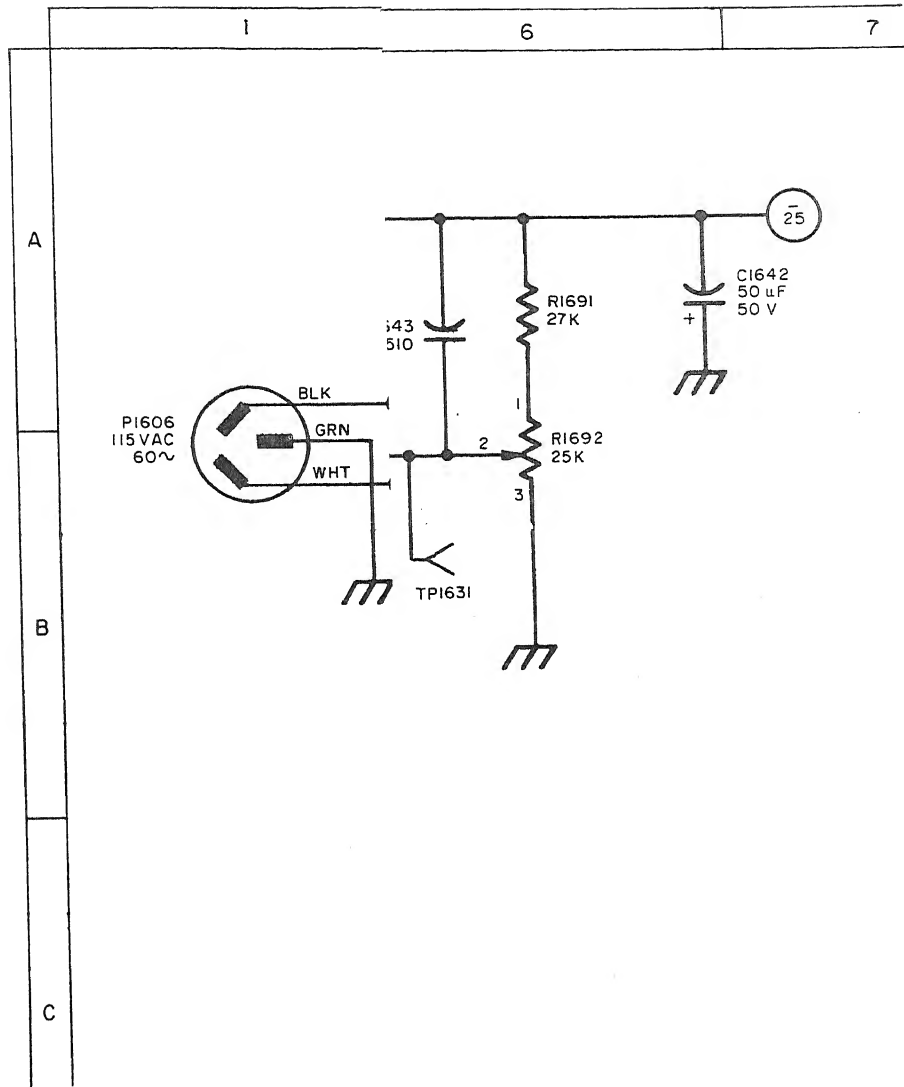






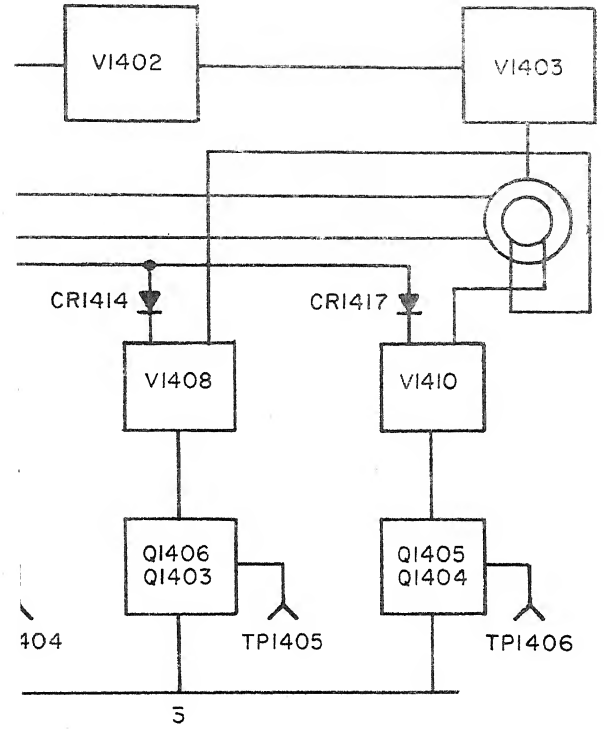
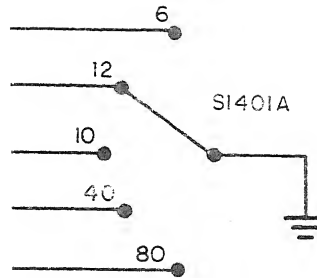












Deflection, Unblanking and  
Block Diagram



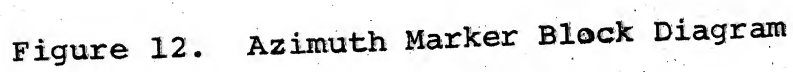
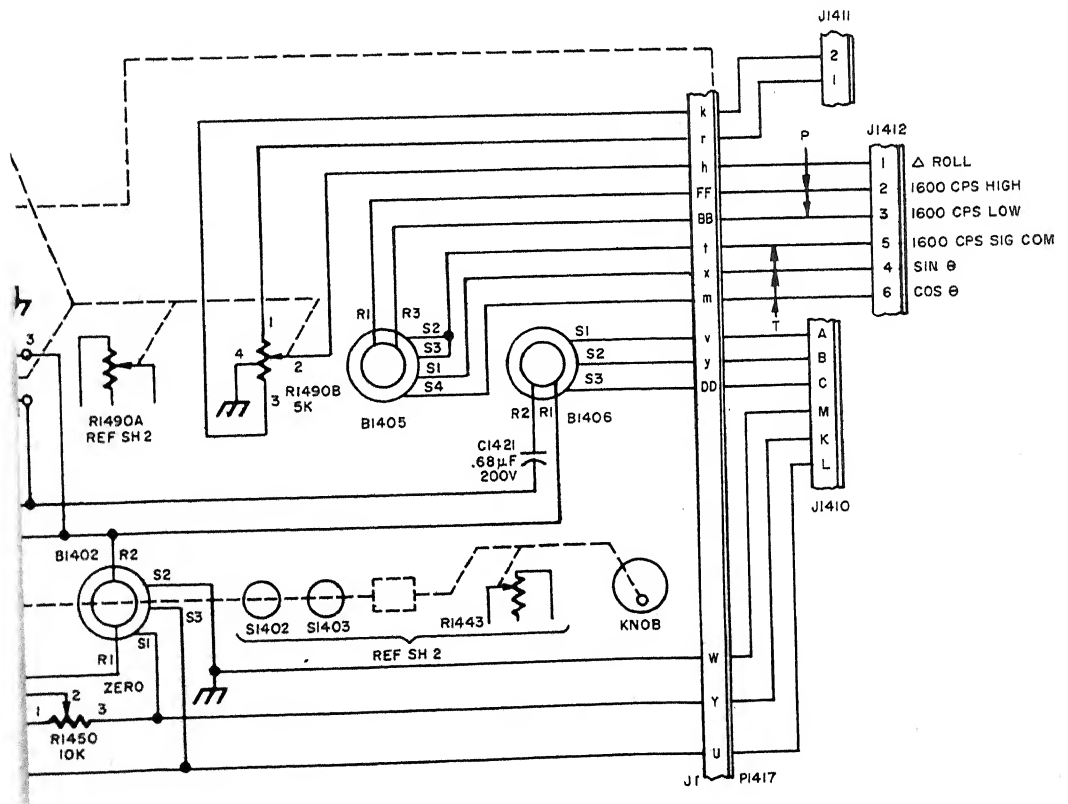


Figure 12. Azimuth Marker Block Diagram



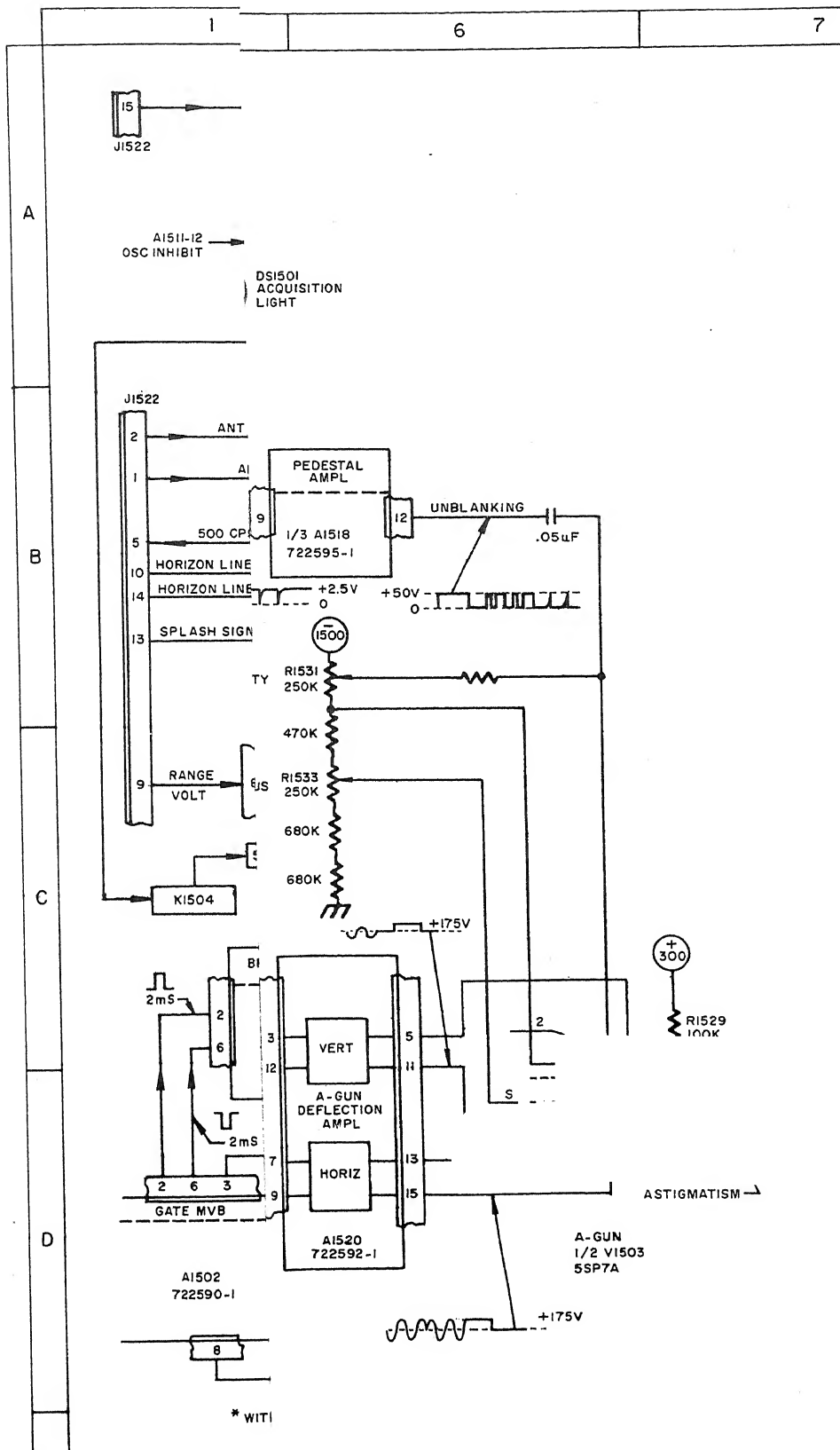














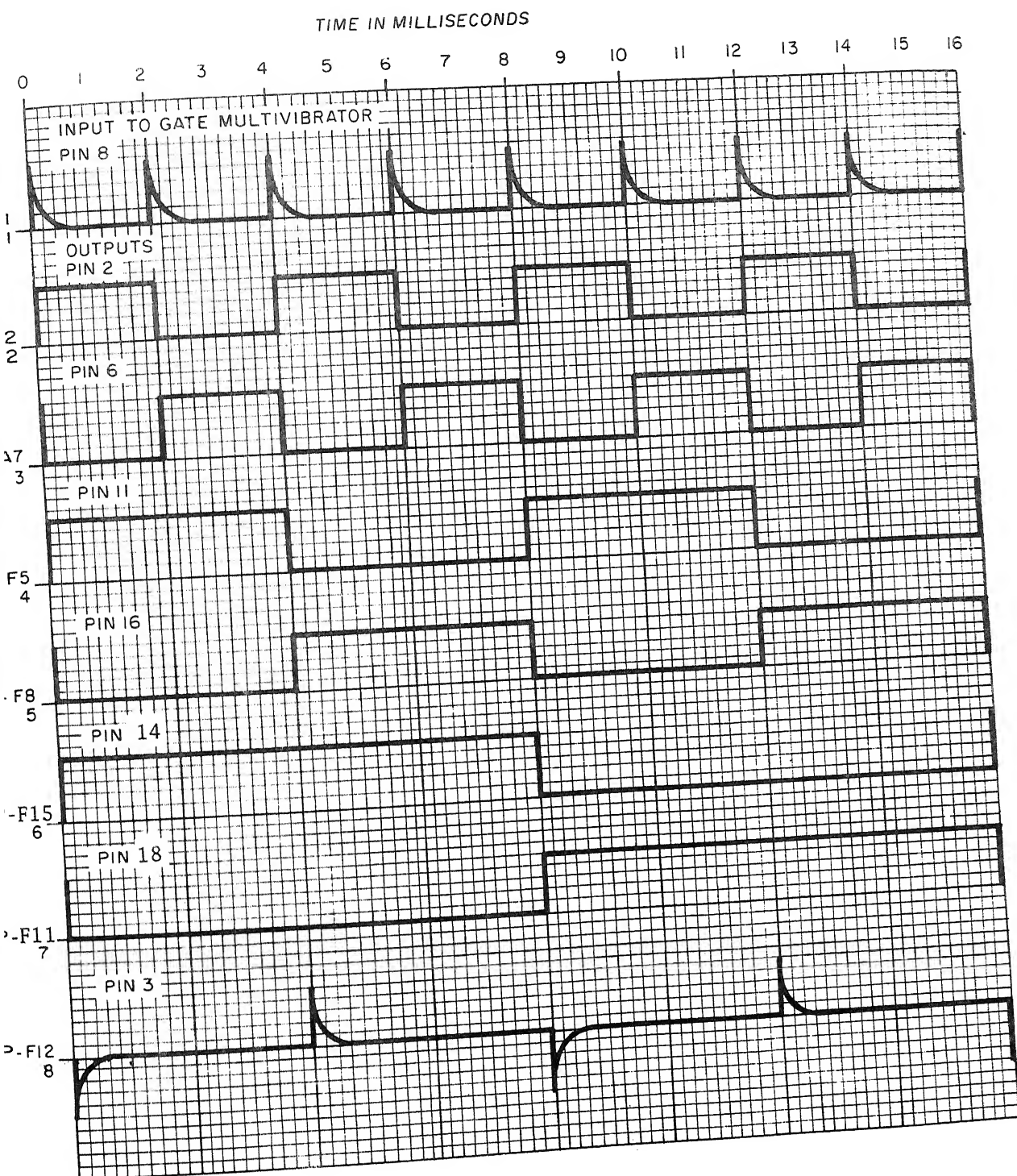


Figure 15. Gate Multivibrator A1502

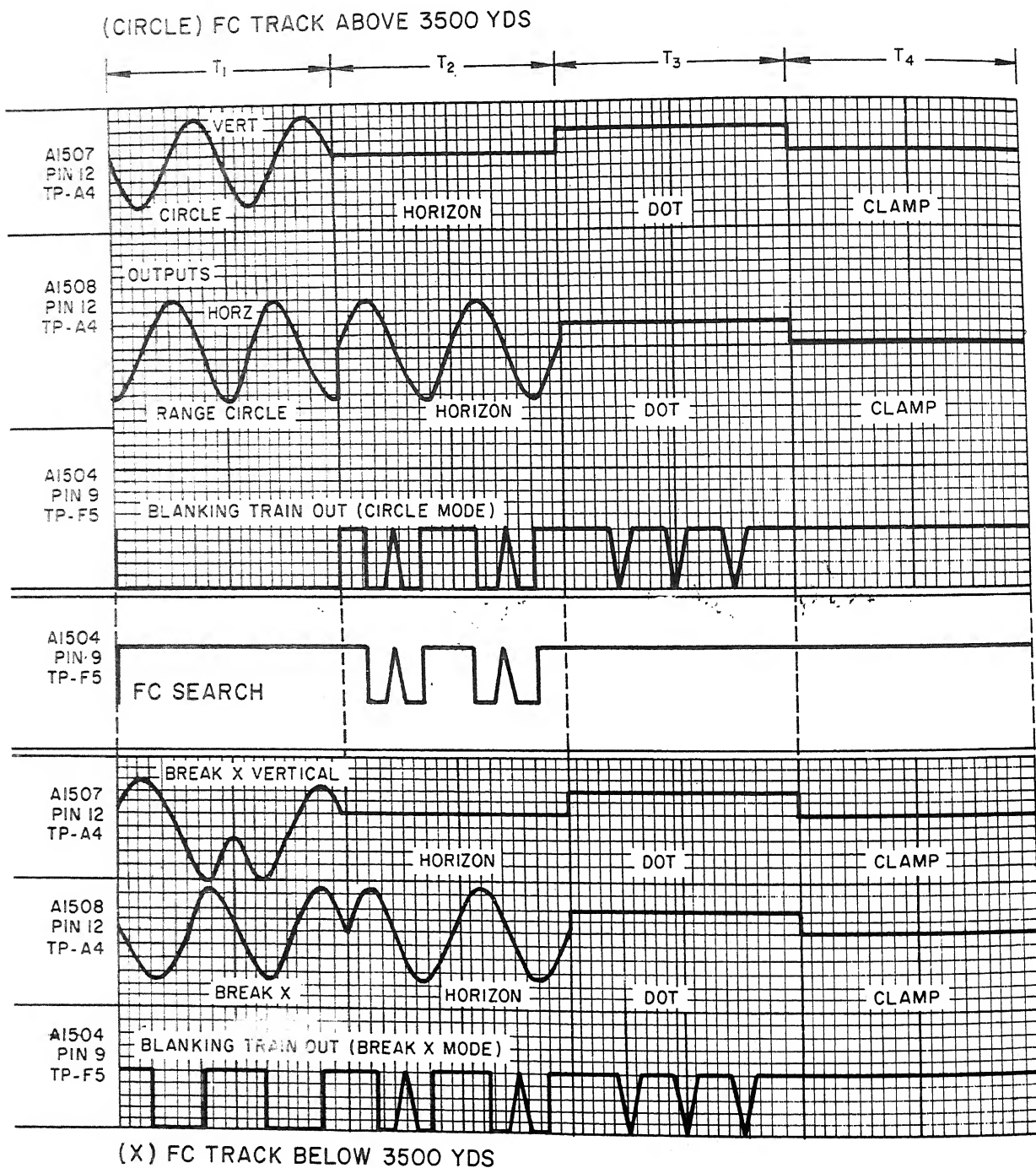
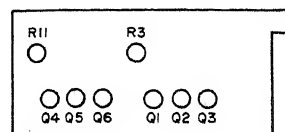
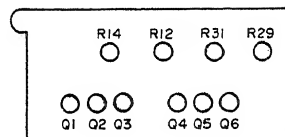
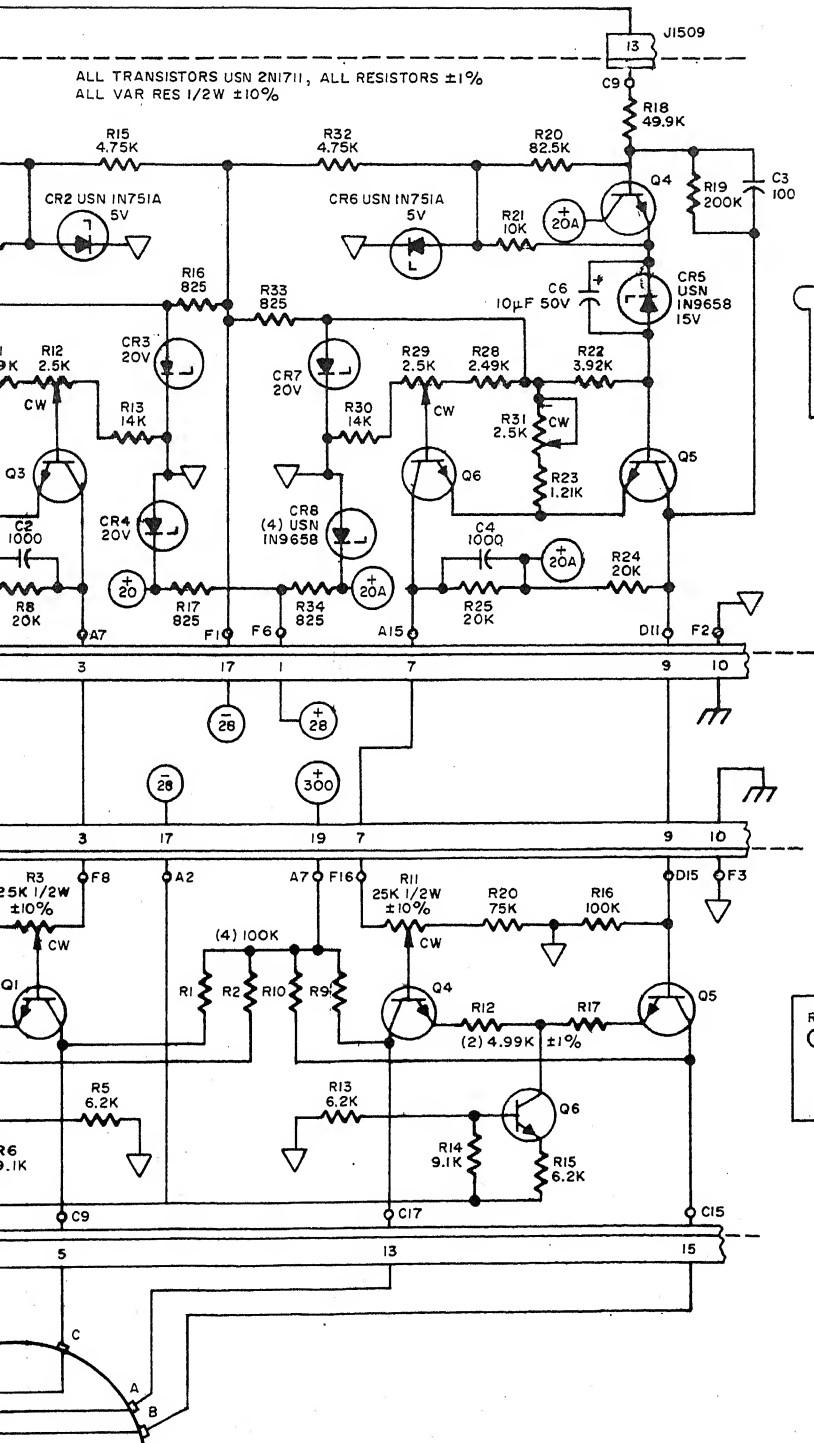


Figure 16. A-Gun Wave Forms and Sequencing

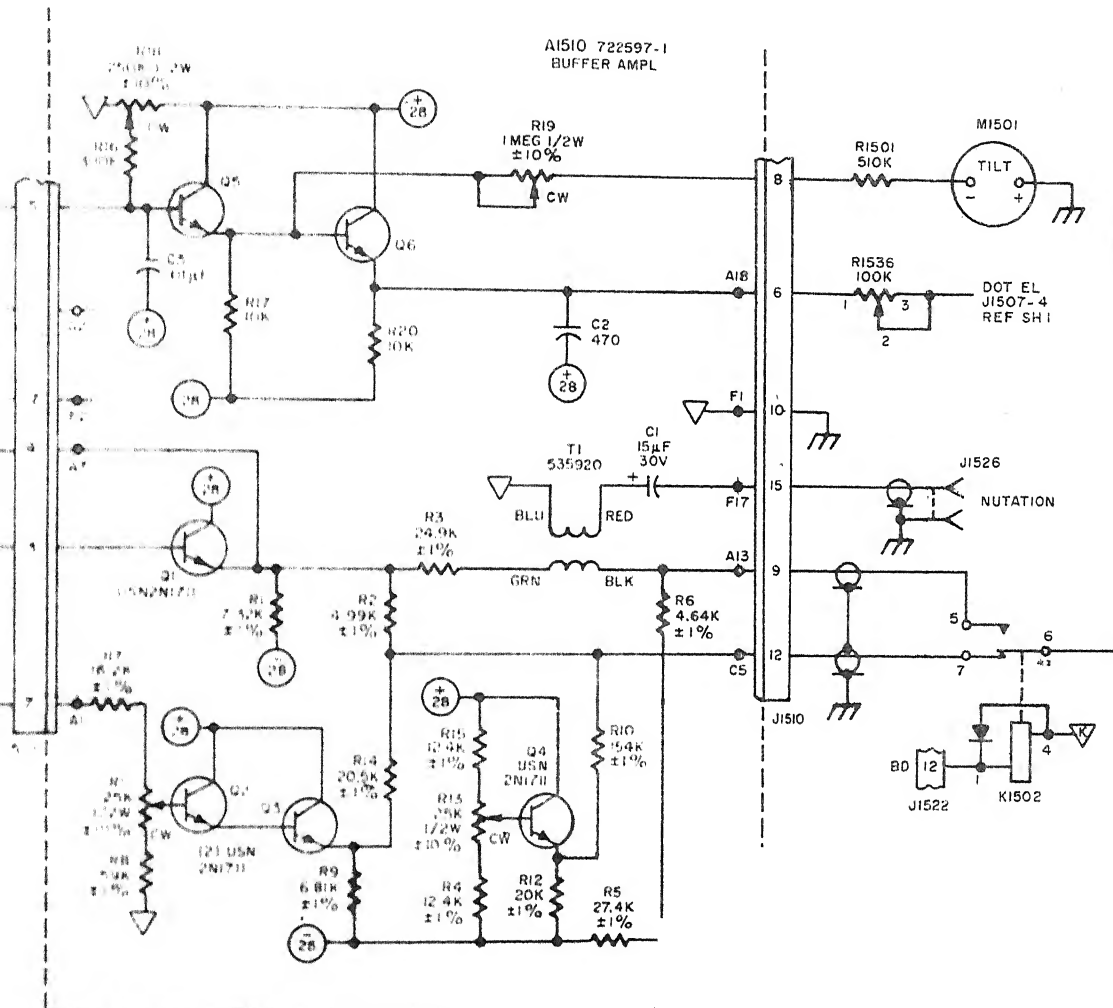




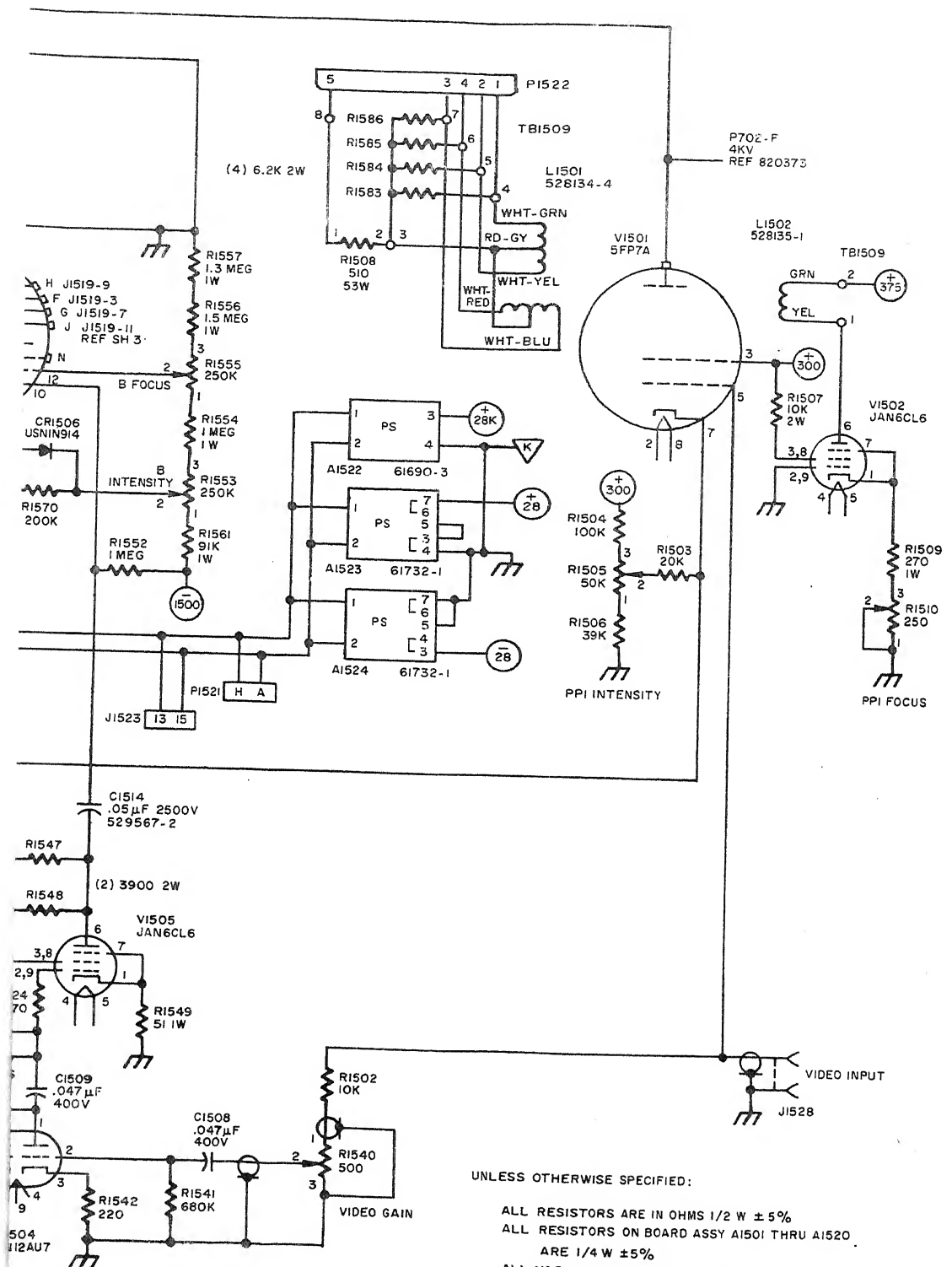




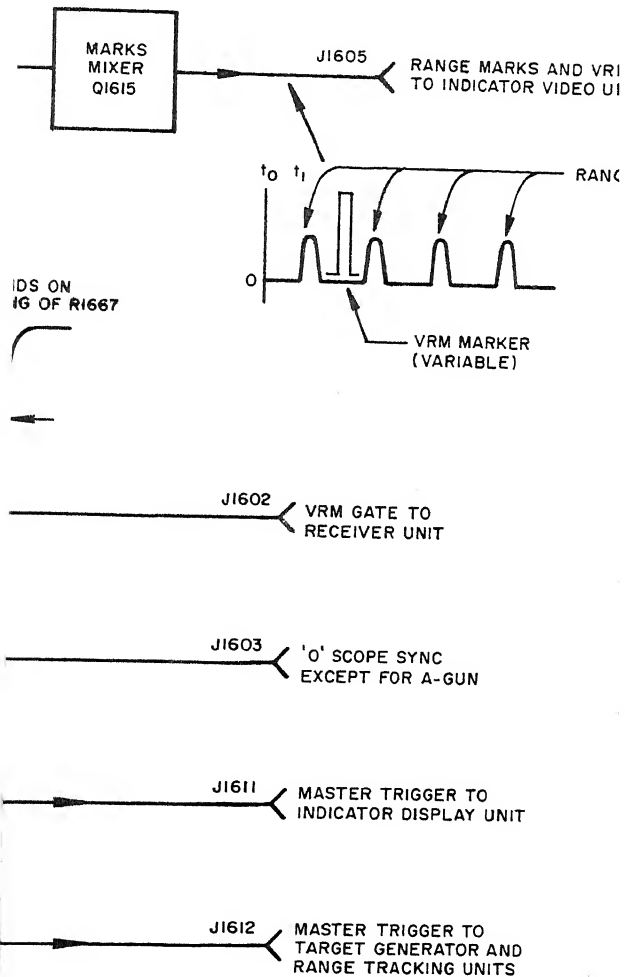
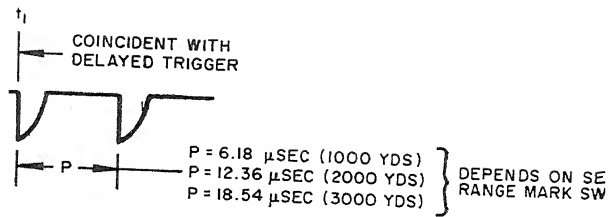


AI510 722597-1  
BUFFER AMPL









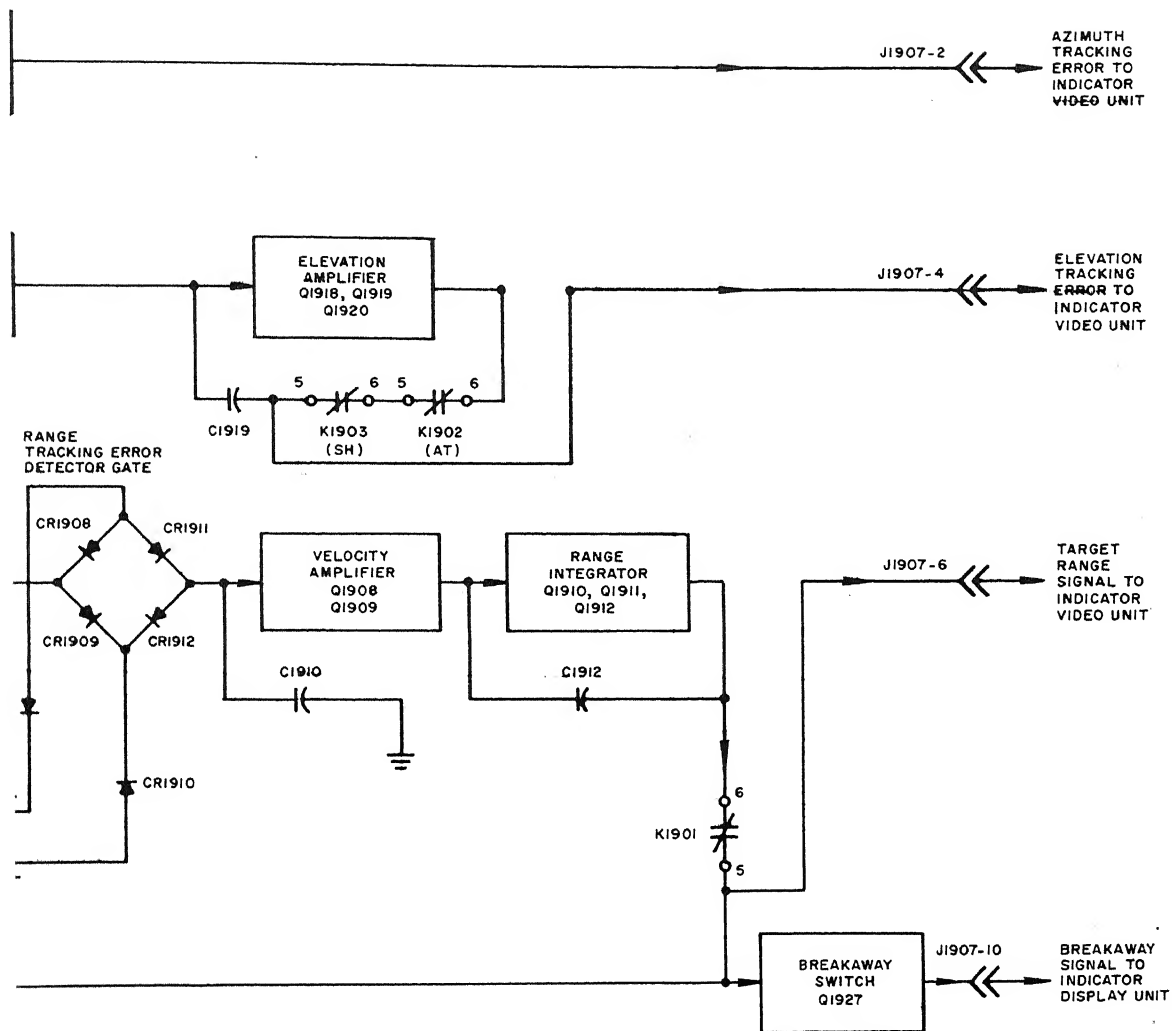




ALL CAPACITORS ARE IN  $\mu\mu F$  500V  $\pm 5\%$

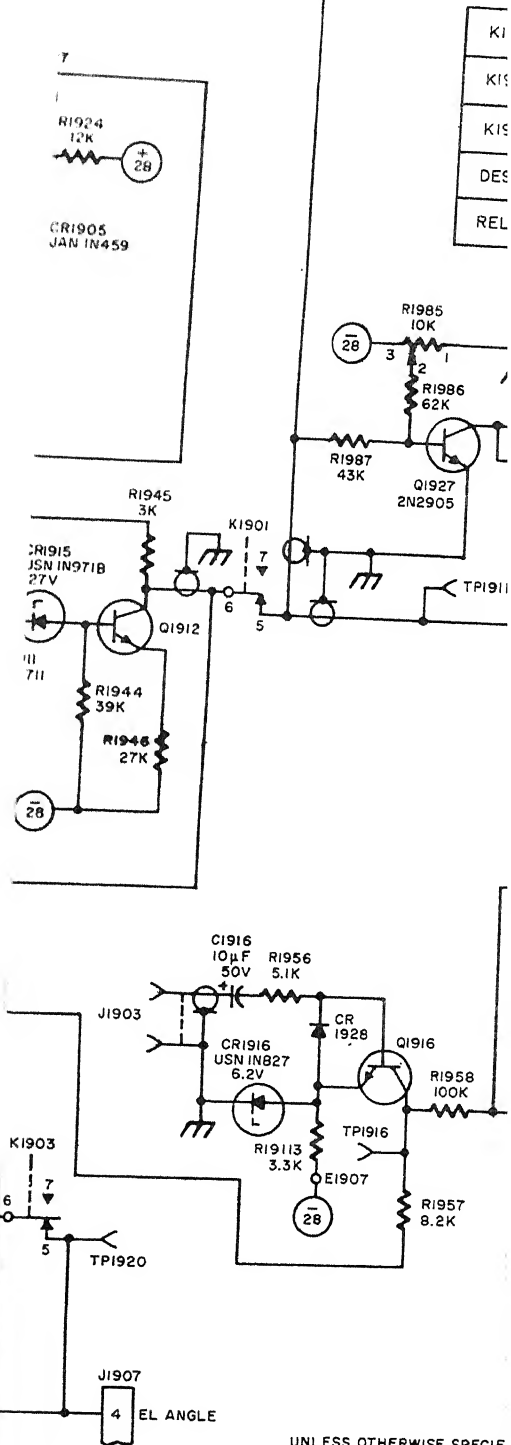






Range and Angle Tracking Unit 1900, Block Diagram





UNLESS OTHERWISE SPECIF  
 ALL RESISTORS ARE IN  
 ALL CAPACITORS ARE  
 ALL TRANSISTORS ARE  
 ALL DIODES ARE JAN